



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,555	04/22/2004	Timothy Francis Dumm	128346.12601	6364

7590 03/24/2006

Pepper Hamilton LLP
Firm 21269
50th Floor, One Mellon Center,
500 Grant Street
Pittsburgh, PA 15219

EXAMINER

IVEY, ELIZABETH D

ART UNIT	PAPER NUMBER
----------	--------------

1775

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/829,555

Applicant(s)

DUMM ET AL.

Examiner

Elizabeth Ivey

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 16-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/04 and 11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-15, drawn to a coated article, classified in class 428, subclass 698.
- II. Claims 16-28, drawn to a method of providing a wear resistant coating to a substrate, classified in class 427, subclass 212.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product may be made by a materially different process without any surface preparation.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with James Singer on March 10, 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-28 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Art Unit: 1775

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5 and 7-11, 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,639,285 to Yao et al.

Regarding claims 1-3, 5 and 11, Yao discloses a cutting tool with a tungsten carbide substrate and a layer on the substrate (abstract). The layer on the substrate may be cubic boron nitride (CBN) particle coated with titanium carbonitride or titanium aluminium carbonitride dispersed in a refractory material solid solution (matrix) of titanium carbonitride or titanium aluminum carbonitride, which would constitute a wear resistant coating (column 9 lines 5-10 and column 3 lines 60-67).

Regarding claim 7, Yao discloses the wear resistant coating is in powder form (column 2 lines 64-65).

Art Unit: 1775

Regarding claim 8, claim 8 is a product by process claim wherein the patentability of the product does not depend on its method of production. "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process unless it can be shown that the product produced by the process is in some manner measurably distinct from the product produced by another process." *See MPEP 2113*. As such, the process limitation within claim 8 does not provide patentable distinction over the prior art.

Regarding claim 9, Yao discloses particle sizes of 1-30 microns (column 3 lines 36-41).

Regarding claim 10, Yao disclose the metallic coating to be titanium carbonitride or titanium aluminum carbonitride with formulae such as $\text{TiC}_{0.2}\text{N}_{0.8}$ with stoichiometric coefficients of 0.2 and 0.8 for C and N respectively.

Regarding claims 13-14, Yao discloses the particle to be chemically bonded to the coating and the coating is chemically bonded to the matrix (column 5 lines 57-61 and column 6 lines 39-41).

Regarding claim 15, Yao discloses interspersed titanium carbonitride domains, which provide mechanical support for the particles making a uniformly distributed particulate (column 6 lines 28-31).

Art Unit: 1775

Claims 1-5, 8-9 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,232,469 to McEachron et al.

Regarding claims 1 and 3, McEachron discloses a substrate coated with metal-coated diamond particles in a metal matrix (column 6 line 65 – column 7 line 4).

Regarding claim 2, McEachron discloses the matrix may be cobalt, nickel, or cobalt/bronze (column 4 lines 23-35).

Regarding claim 4, McEachron discloses the metal coating on the particles as metals such as silicon, chromium, titanium, tungsten, zirconium, hafnium, vanadium, niobium, tantalum, or molybdenum (column 3 lines 18-22).

Regarding claim 5, McEachron discloses a metal substrate such as steel (column 6 line 65- column 7 line 3).

Regarding claim 8, claim 8 is a product by process claim wherein the patentability of the product does not depend on its method of production. “If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process unless it can be shown that the product produced by the process is in some manner measurably distinct from the product produced by another process.” *See MPEP 2113*. As such, the process limitation within claim 8 does not provide patentable distinction over the prior art.

Art Unit: 1775

Regarding claim 9, McEachron discloses diamond particle size can vary widely within the range of 1-1500 microns, which overlaps the claimed range of <50 microns (column 2 line 65- column 3 line 2).

Regarding claims 13 and 14, McEachron discloses that the metal coating chemically bonds to the particles and that the coated particles are sintered into the matrix and therefore chemically bonded (column 3 lines 29-31 and column 4 lines 23-36).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,639,285 to Yao et al. or alternatively to U.S. Patent 5,232,469 to McEachron et al. as applied to claim 1 in view of U.S. Patent 5,167,674 to Ika.

Both Yao and McEachron disclose all of the limitations of claim 1 in articles for abrasive or wear resistant purposes but do not specifically disclose a reinforced organic resin substrate. Ika discloses the use of a phenolic resin preform coated with a phenolic resin cement, which can perform a reinforcing function, used with metal-coated CBN or diamond particles for abrasive and wear resistant purposes (column 2 lines 43-56 and column 6 line 65 – column 7 line 1). Because steel and resin are common substrate materials and can be used interchangeably as substrates for metal coated diamond or CBN particles and used in abrasive or wear resistant functions, it would have been obvious to a person having ordinary skill in the art at the time of the invention to substitute the substrates of Yao or McEachron with a resin substrate as in Ika.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,639,285 to Yao et al. as applied to claim 1 above.

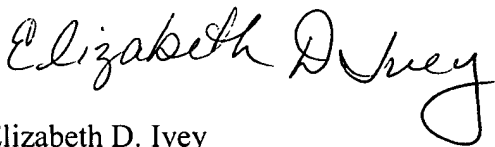
Regarding claim 12, Yao discloses all of the limitations of claim 1. Although Yao does not expressly disclose a wear resistant coating thickness, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the thickness for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

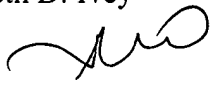
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Ivey whose telephone number is (571) 272-8432. The examiner can normally be reached on 7:00- 4:30 M-Th and 7:00-3:30 alt. Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Elizabeth D. Ivey



JENNIFER MCNEIL
PRIMARY EXAMINER
3/19/06